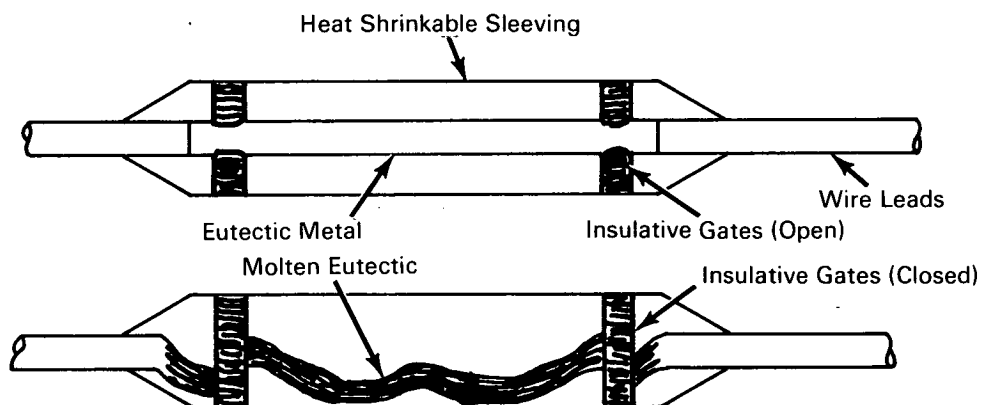


# NASA TECH BRIEF



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## Eutectic Fuse Provides Current and Thermal Protection under High Vibration



### The problem:

To develop a fuse that will provide current and thermal protection to an electronic system and maintain this protection under high vibration environments. Presently used circuit breakers and fuses do not afford adequate protection in high vibration environments.

### The solution:

The use of eutectic fuses, embedded within heat shrinkable sleeving to provide positive closing action under the conditions of high current or temperature.

### How it's done:

The protection device consists of a heat shrinkable body with leads on both ends. Inside the body is a eutectic wire completing the circuit between the two leads. At either end of the body are heat shrinkable insulative gates which fit over narrowed sections of the eutectic wire.

During conditions of high current or external heat, the body and gates will shrink, closing off the path of the current as the eutectic wire melts. In the closed configuration, the gates form two completely insulative obstacles in the path of the current. Since the

eutectic material is completely separated in three sealed chambers, the probability of forming a conducting path is further decreased and the configuration can withstand extreme vibration environments without the possibility of completion of the circuit.

### Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer  
Marshall Space Flight Center  
Huntsville, Alabama 35812  
Reference: B67-10535

### Patent status:

No patent action is contemplated by NASA.

Source: N. Ierokomos  
of North American Aviation, Inc.  
under contract to  
Marshall Space Flight Center  
(MFS-13664)  
Category 01